

## Claims

- [c1] A method for completing an unconsolidated interval, including particulates, in a subterranean formation, including the step of consolidating said interval by injecting an aqueous solution of colloidal particles and of at least one element selected from the group consisting of a pH modifier and/or an ionic-strength modifier to form a hard gel that holds the particulates together and then, the step of hydraulically fracturing the consolidated interval.
- [c2] The method of claim 1, wherein said colloidal particles are charged.
- [c3] The method of claim 1, wherein said colloidal particles have an average diameter between 4 and 100 nm.
- [c4] The method of claim 3, wherein said colloidal particles have an average diameter between 4 and 22 nm.
- [c5] The method of claim 1, wherein said colloidal particles are silica particles.
- [c6] The method of claim 5, wherein said colloidal silica solutions used for this invention contained between 2 and 50

weight percent of silica.

- [c7] The method of claim 6, wherein said colloidal silica solutions used for this invention contained between 25 and 50 weight percent of silica.
- [c8] The method of claim 5, wherein said colloidal particles are charged.
- [c9] The method of claim 5, wherein said colloidal silica solutions may contain ethylene glycol, propylene glycol or methanol at a concentration comprised between 0.1 and 10 weight percent.
- [c10] The method of claim 9, wherein said colloidal silica solutions may contain ethylene glycol, propylene glycol or methanol at a concentration comprised between 0.1 and 5 weight percent.
- [c11] The method of claim 1, wherein the consolidated interval has compressive strength greater than 250.
- [c12] The method of claim 1, wherein said interval is open-hole.
- [c13] The method of claim 1, wherein said interval is cased hole and perforated.
- [c14] The method of claim 1, wherein the ionic-strength mod-

ifier is a brine.

- [c15] The method of claim 1, wherein the pH modifier is an acid.
- [c16] The method of claim 1, wherein the pH modifier is a base.
- [c17] The method of claim 1, wherein the concentration of the pH modifier and/or of the ionic strength modifier is comprised between 0.1 and 5 wt%.
- [c18] The method of claim 17, wherein the concentration of the pH modifier and /or of the ionic strength modifier is comprised between 0.1 and 1.5 wt%.
- [c19] The method of claim 1, wherein the area to be consolidated has a depth of between about 15 and about 90 cm.
- [c20] The method of claim 1, wherein in the step of hydraulically fracturing, the fracture is designed to have a length greater than about twice the depth of the consolidated interval.
- [c21] The method of claim 1, further comprising injecting the consolidation treatment following a hesitation scheme.
- [c22] The method of claim 1, wherein the volume of injected

consolidated fluids is between about 2 and about 10 the volume of the pores of the formation to be consolidated.

- [c23] A method for completing an unconsolidated interval, including particulates, in a subterranean formation, including the step of consolidating said interval by injecting into said interval an aqueous solution of colloidal silica, of micrometric particles, of a pH modifier and/or of an ionic-strength modifier to form a hard gel that holds the particulates together and then, the step of hydraulically fracturing the consolidated interval.
- [c24] The method of claim 23, wherein said micrometric particles are selected from the group consisting of mica, precipitated silica, silica fumes, non-swelling clay and starch.
- [c25] The method of claim 23, wherein said micrometric particles having 80% of their particle sizes ranging between about 1 and about 60  $\mu\text{m}$ .